

## CLAIMS

1. A method of producing light metal castings composed of magnesium or magnesium alloys, comprising the steps of supplying a liquid metal first to a dosing chamber; pumping gas under pressure into the dosing chamber so as to press the liquid metal into a preliminarily evacuated mold nest; performing a production process within a system which is pressure-tightly closed from outside; performing heating of the liquid metal in a lower part of a melting device which adjoins a feed system; performing overheating of the liquid metal from a melting condition with a temperature of approximately 630°C to a rigidification condition at a tool side to a lower region of a valve seat; and supplying and withdrawing a protective gas by a differential pressure system.

2. A method as defined in claim 1; and further comprising performing, within the closed system a post-dosing of rigid light metal by a sluice device under an available pressure difference between outer atmosphere and an inner pressure in the melting device.

3. A method as defined in claim 1; and further comprising supplying the light metal selectively in a liquid form through a metal supply conduit and/or as a rigid light metal through a sluice device.

4. A method as defined in claim 1; and further comprising selecting a quantity of the light metal to be supplied as a multiple of a light metal quantity required for a light metal casting to be produced.

5. A method as defined in claim 1; and further comprising rigidifying the liquid light metal by a movement of a tool device away.

6. A method as defined in claim 1; and further comprising supplying and withdrawing of the protective gas through a pressure intensifier, and compensating pressure losses by protective gas post-dosing.

7. A method as defined in claim 1; and further comprising performing the rigidification of the light metal by lifting a casting retort and thereafter placing the casting retort on a tool device of a last workpiece to be treated.

8. A device for producing light metal castings of magnesium or magnesium alloys, comprising a melting unit having a container; a metal supply conduit arranged in said container and extending outwardly in a pressure tight manner; a pre-melting oven; a check valve through which the liquid metal is supplied from said pre-melting oven; a differential pressure system with which said container of said melting unit is connected; and sluice means introduced into said container of said melting means in a pressure tight manner.

9. A device as defined in claim 8, wherein said differential pressure system includes a pressure intensifier, and a protective gas-post-dosing means arranged after said pressure intensifier and compensating pressure losses.

10. A device as defined in claim 8, wherein said differential pressure system includes a blow storage and a pump system associated with the latter.

11. A device as defined in claim 1; and further comprising a casting retort which narrows in direction toward a feed system, said metal supply conduit being arranged in a pressure-tight manner in said casting retort and supplying a liquid metal from said pre-melting oven through said check valve, said casting retort being connected with a pressure intensifier, and said pressure intensifier being connected with a protective gas dosing means which compensate pressure losses, said sluice means being arranged in said casting retort in a pressure tight manner for supplying a rigid

light metal; a valve control means for controlling the supply of the liquid metal and associated with a valve lock for performing a supply in a very short time.

12. A device as defined in claim 8; and further comprising a system selected from the group consisting of a pneumatic system, a hydraulic system and both, and providing a valve control means, said valve control means being connected with a valve lock selected from the group consisting of a hydraulic valve lock, a pneumatic valve lock, and an electromechanical valve lock.

13. A device as defined in claim 8; and further comprising means for rigidification of the liquid metal by a heat-insulating, cooled supply; and a heat-insulating layer locked between said melting device and a tool device.

14. A device as defined in claim 8, wherein said check valve is located inside said container of said melting device.